REMARKS

This application has been reviewed in light of the Office Action mailed on May 21, 2004. Claims 1-21 and new claims 30 and 31 are pending in this application. Claims 1 and 19 have been amended to define still more clearly what Applicant regards as the invention, in terms that distinguish over the art of record. Claim 17 has been amended to correct improper dependency. Favorable reconsideration is requested. Claims 22-29 are hereby cancelled.

Claim Rejections – 35 U.S.C. § 112

Claims 17, 19 and 20 stand rejected under 35 U.S.C. § 112, second paragraph for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Specifically, claim 17 is rejected because it allegedly lacks antecedent basis for the term "thin strip." Claim 17 has been amended to be dependent from claim 12 and now the term "thin strip" has antecedent basis.

Claim 19 is rejected because it is dependent upon itself and because the positioning of the sensor is different from claim 1, which Claim 19 is supposed to depend from. Claim 19 has been amended to depend from claim 1. Claim 1 has also been amended, *inter alia*, to indicate that the first tread element comprises means that constitute a sensor and claim 19 has been amended to further define the location of the sensor, as embedded in the first tread element, consistent with claim 1. These amendments to claims 1 and 19 have also addressed the Examiner's rejection of claim 20 as allegedly unclear as to what additional limitation is required. Accordingly, Applicants' respectfully request withdrawal of the rejection of the claims under 35 U.S.C. § 112.

Claim Rejections – 35 U.S.C. § 102

In paragraph 4 in the Office Action the Examiner states claim rejection grounds under 35

U.S.C. § 102(b).

Claims 1, 6 and 19-21 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,964,265 ("Becherer"). Also, claims 1-4, 6-10, 19 and 20 stand rejected under 35 U.S.C. §102(b) as being anticipated by German Patent DE 3939917 (German '917). Applicants respectfully traverse the rejection and submits that the claims are patentability distinct from the prior art for at least the following reasons.

The Claimed Invention

Amended claim 1 covers a tire whose tread comprises at least first and second tread elements, wherein the tread elements are different from one another and wherein the contact surface of the first tread element, at least within a range of rolling conditions to be monitored, slides relative to the ground during its passage through the contact area and wherein the second tread element, at least within a range or rolling conditions to be monitored, does not slide over the ground.

The tread also comprises a means that constitute a sensor capable of making a measurement of at least a tangential force in the contact surface of the first tread element during its passage through the contact area.

Claim 2 depends on claim 1 and further specifies that the first tread element is made of a material different from that of the second tread element, wherein the material confers to the first tread element an adherence potential lower than that of the second tread element. Claim 3 depends on claim 1 and further specifies that the first tread element is made of a material different from that of the second tread element, wherein the material confers to the first tread element a wear resistance better than that of the second tread element. Claim 4 depends on claim 1 and further specifies that first tread element is made of a material having a Young's modulus

higher than the Young's modulus of the material from which the second tread element is made. Claim 6 also depends on claim 1 and provides that the sensor is sensitive at least to a tangential force in the contact surface of the second tread element during its passage through the contact area. Claim 7 depends from Claim 1 and specifies that the first tread element has a central zone surrounded by an encircling zone wherein the sensor is disposed so as to achieve a measurement in the central zone and being sensitive to at least one tangential force exerted at the surface of the central zone.

Claim 8 depends from claim 7 and further specifies that the surface area of the central zone is at least substantially equivalent to the surface area of the encircling zone. Claim 9 also depends from Claim 7 and further specifies that L_r is the length of the first tread element in the preferred rolling direction, L_g is the length of the first tread element in the direction perpendicular to the preferred rolling direction, L_1 being the length of the central zone in the preferred rolling direction, L_2 is the length of the central zone in the direction perpendicular to the preferred rolling direction, d_r is the minimum length measurable on the encircling zone in the preferred rolling direction, dg is the minimum length measurable on the encircling zone in the direction perpendicular to the preferred rolling direction, and wherein the following relations are obeyed: $dr > Lr/10$, $dg > Lg/10$, $Lr/5 < L1 < 4Lr/5$ and $Lg/5 < L2 < 4Lg/5$. Claim 10 depends on claim 7 and specifies that the center mass of the first tread element is in the central zone.

Claim 19 depends on claim 1 and specifies that the means which constitutes a sensor is embedded within the first tread element. Claim 20 depends from claim 19 and further specifies that the sensor is arranged radially inside the tread intended to become worn during the use of the tire. Claim 21 depends from Claim 1 and provides that the sensor comprises a device(s) with Hall effect. Newly presented claim 30 depends on claim 1 and provides that all the first tread

elements are substantially similar elements.

Applicant's claimed invention is not disclosed nor suggested by either Becherer or German '917.

The Cited Prior Art

Becherer discloses a vehicle tire having a carcass, a belt and a tire tread which is provided with a device for generating data for determining tire-road adhesion. The device of Becherer includes at least one magnetic sensor connected to an evaluation device which is embedded in a lug of the tire tread. The center tread lug of Becherer does not slide, independently of the remaining part of the tire tread. *See*, column 3, lines 34-44.

Becherer neither discloses nor suggests the Applicants' claimed tire in which the tread comprises at least a first and second tread element, wherein the first tread element is different from the second tread element, and wherein the first tread element is configured such that the contact surface thereof slides relative to the ground but the second tread element does not slide. Becherer makes no mention of first sliding tread element and a second non-sliding tread element. Moreover, Becherer proposes to perform a measurement of the relative displacement of sensors with respect to a magnetized area of the belt (*see* Col. 4, lines 1-8) – this type of measurement is not the same as the measurement obtained by the present invention of at least a tangential force in the contact surface of the first tread element during its passage through the contact area.

German '917 discloses a tire having a plurality of measuring knobs to which a defined coefficient of friction is assigned by virtue of their geometric shape. The measuring knobs are capable of beginning to slide or slip at various different values of adherence on the road. A sensing element is provided to detect whether the measuring knobs are or are not slipping/sliding and from this a calculation is made of the momentary friction between the tire and the rolling

surface. German '917 teaches that the coefficient of friction is inversely proportional to the number of measuring knobs that are sliding. The sensor of German '917 is a kind of switch that is either open or closed, which correlates with whether the measuring knob is or is not sliding/slipping, respectively. This is not a measurement *per se* but rather an estimation that comes from the number of switches that are closed, i.e. the number of knobs that are sliding/slipping. German '917 makes the assumption that the coefficient of friction is dependent only on the tread and not on the road.

The approach of German '917, which focuses on the tread, appears flawed because the actual coefficient of friction is a parameter of two elements which must be taken together, the tread on one side and the road on the other side. In contrast, Applicants claim a tire having a sensor capable of making a measurement of the tangential force in the contact surface of the first tread element during its passage through the contact area. In addition, German '917 requires multiple measuring knobs in order to make the measurement, whereas Applicants' invention does not. While additional tread elements may be included in Applicants' invention, they are not essential for making the measurement, as are the multiple measuring knobs of German '917, further highlighting the insufficiency of the teaching in German '917 with respect to the present invention.

Rejection for anticipation or lack of novelty requires, as the first step in the inquiry, that all the elements of the claimed invention be described in a single reference. Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ 2d 1913, 1920 (Fed. Cir. 1989). Further, the reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it. Akzo N.V. v. United States Int'l Trade Comm'n, 808 F.2d 1471, 1479, 1 USPQ2d 1241, 1245 (Fed. Cir. 1986). Clearly, Becherer

and German '917, do not satisfy these legal criteria of anticipatory prior art, for neither patent includes all the claim elements and neither sufficiently describes Applicant's claimed invention. Accordingly, neither Becherer or German '917 anticipates Applicants' claims and withdrawal of the §102(b) rejections based on these references is respectfully requested.

Claim Rejections – 35 U.S.C. §103

The Examiner has contended that claims 1-6, and 18-21 are unpatentable under 35 U.S.C.§103 over German '917 in view of Becherer; that claims 2-4 are unpatentable under 35 U.S.C.§103 over German '917 in view of Becherer and applied above and further in view of Oubridge (U.S. Patent No. 3,364,965), Knill (U.S. Patent No. 4,319,620), or Japan '807 (JP 61-263807); that claim 5 is unpatentable under 35 U.S.C. §103 over German '917 in view of Becherer as applied and further in view of Japan '802; that claims 7-17 are unpatentable under 35 U.S.C. §103 over German '917 in view of Becherer as applied above and further in view of Japan '807, Japan '321 (JP 6-171321), or Japan '918 (JP 8-118918) and optionally in view of Travert (Europe 1076235 or Brazil 200002924).

There is No *Prima Facie* Case of Obviousness

None of the patents cited by the Examiner support a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation in the cited references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the combined references must teach or suggest all the claimed limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and must not be based on the applicants' disclosure. *In re Vaeck*, 947 F.2d 488, 20

USPQ 2d 1438 (Fed. Cir. 1991); MPEP § 2142.

In this case the combination of the references does not teach or suggest all the claimed limitations. Furthermore, there is no suggestion or motivation in any of the cited references to combine selective portions of the various patents to arrive at Applicants' invention.

The Examiner's main obviousness rejection for all the claims lies in the apparent contention that German '917 and Becherer, either alone or when combined, provide the necessary elements of independent claim 1. The Examiner then looks to the other patents cited to provide the additional elements recited in the dependent claims.

The Examiner has asserted that,

> Claim 1 is considered to be anticipated by each of German '917 and Becherer. In any event: As to claims 1, 6, 19 and 20, it would have been obvious to one of ordinary skill in the art to use German '917's measuring knobs (each of which has a sensor embedded therein) in combination with tread lugs which do not have sensors since (1) German '917, directed to determining friction conditions between a tire and a road surface, teaches incorporating the sensor containing measuring knobs in a tire tread and (2) Becherer, also directed to determining friction conditions between a tire and road surface, teaches providing at least one tread lug (tread element) with a sensor; the remaining tread lugs thereby not having sensors therein.

As noted above, none of Applicants' claims, including independent Claim 1, are anticipated by German '917 or Becherer. Moreover, the skilled artisan would not have any reason to combine German '917 with Becherer because, contrary to the Examiner's contention, these references do not relate to the making of the same type of measurement. Becherer proposes to perform a measurement of the relative displacement of sensors with respect to a magnetized area of a belt (*see* Becherer col. 4, lines 1-8) to obtain the desired measurement. This is a local measurement that is not easily correlated with the coefficient of friction and, more importantly, would need to be correlated with the remaining safeguard (available adherence margin) before

the entire footprint of a tire could slip. DE '917 teaches an alternative which is supposed to approach the estimation of the coefficient of friction. Accordingly, the skilled artisan would not be motivated to combine these references.

Notwithstanding the lack of motivation to combine these references, the combination of German '917 and Becherer does not provide a teaching of all the elements of independent Claim 1, nor of any of the other rejected claims. As noted above, Becherer does not teach that the center tread lug slides and the remaining part of the tread does not slide. In addition, the tread lug of Becherer is not a sensing element, it merely houses a sensing element. As for German '917, it discloses a plurality of measuring knobs which slide to obtain a measurement in a different manner than Applicants' tread elements. German '917 discloses that the coefficient of friction is inversely proportional to the number of knobs that are sliding. A sensor is provided in German '917 that detects whether the knobs are sliding and produces an estimation based on how many knobs are sliding. Taken together, German '917 and Becherer do not teach a first tread element capable of sliding, and a second tread element that does not slide, wherein just these two elements are necessary for the sensor to make a measurement. While additional first and second tread elements may be included, they are not required. Moreover, taken together, these references to not teach making a measurement of at least a tangential force in the contact surface of the first tread element during its passage through the contact area. These are two required elements of Applicants' claims, including independent Claim 1, which are missing from the combination of German '917 and Becherer.

The additional references cited by the Examiner do not correct for this deficiency and therefore do not support a showing of obviousness when combined with German '917 and/or Becherer of the remaining rejected dependent claims, which include all of the limitations of

independent Claim 1. The Examiner has rejected claims 2-4 under 35 U.S.C. § 103(a) as unpatentable over German '917 in view of Becherer as applied above and further in view of Oubridge (U.S. Patent No. 3,364,965), Knill (U.S. Patent No. 4,319,620) or Japan '807 (JP 61-263807). The Examiner alleges that it would have been obvious to the skilled artisan to use the claimed different materials for the tread elements in German '917 in view of Becherer and further in view of Oubridge, Knill or Japan '807. However, as noted above, because German '917 and/or Becherer do not teach the required elements of independent claim 1, the combination of German '917 and/or Becherer with Oubridge, Knill or Japan '807 does not provide a *prima facie* case of obviousness against claims 2-4. Similarly, claim 5 is not obvious from the combination of German '917 and/or Becherer further in view of Japan '802 (JP 62-6802) or Kukimoto et al. (U.S. Patent No. 5,445,201). In addition, and for the same reasons, the combination of German '917 and/or Becherer further in view of Europe 1076235 or Brazil 200002924 does not provide a *prima facie* case of obviousness against claims 7-17. In accordance with the Examiner's request, Applicants submit herewith a copy of Brazil 200002924 (attached hereto as **Exhibit A**). For the Examiner's convenience, Applicants also submit a translation of Brazil 200002924 (attached hereto as **Exhibit B**) and a verified translation of the priority document FR 01 01672 (**Exhibit C**).

Accordingly, Applicants submit that independent Claim 1 is patentable over the cited art, and respectfully request withdrawal of the rejection under 35 U.S.C. § 103(a). The other claims in the present application depend from Claim 1 and therefore are submitted to be patentable for at least the above reasons. Because each dependent claim is also deemed to define an additional aspect of the invention, individual consideration of the patentability of each claim on its own merits is respectfully requested.

CONCLUSION

The present Amendment is believed clearly to place this application in condition for allowance. Should the Examiner believe that issues remain outstanding, it is respectfully requested that the Examiner contact Applicant's undersigned attorney in an effort to resolve such matters and advance the case to issue. In view of the foregoing amendments and remarks, Applicant earnestly solicits favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorneys may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

Alicia A. Russo

John D. Murnane
Registration No. 29,836
(212) 218-2527

Alicia A. Russo
Registration No. 46,192
(212) 218-2568

Attorneys for Applicants

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200

Doc Id. 450165